

Notes on the Genus *Sasanychus* Ehara, New Status, with Description of A New Species from Hokkaido (Acarina, Tetranychidae)

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ABSTRACT—The subgenus *Sasanychus* Ehara in the genus *Panonychus* Yokoyama was elevated to a full genus. A mite, so far referred to “stipeless-egg form” of *P. (S.) akitanus* Ehara, was described under the name *S. pusillus* n. sp. from *Sasa apoiensis* Nakai in Tomakomai, Hokkaido.

INTRODUCTION

The subgenus *Sasanychus* was created by Ehara [1] in the genus *Panonychus* Yokoyama to accommodate a new species *akitanus* taken from *Sasa* sp. in Akita Prefecture. Recently, it was reported by Gotoh [2, 3] that in *P. (S.) akitanus* there were two forms differing in egg shape, micro-habitat preference, overwintering stage, diapause characteristics and voltinism. Moreover, the two forms were experimentally confirmed to be reproductively isolated [4].

On close examination we have come to the conclusion that one of the two forms, “stipeless-egg form”, is not assigned to *akitanus* but to a new species. In this paper the new species is described and illustrated from *Sasa apoiensis* Nakai in Tomakomai, Hokkaido. Further, the subgenus *Sasanychus* is raised here to genus.

Genus *Sasanychus* Ehara, new status

Panonychus (Sasanychus) Ehara, 1978 [1], p. 88.

Type-species: *Panonychus (Sasanychus) akitanus* Ehara.

Two pairs of para-anal setae present. Dorsal idiosomal setae not set on tubercles. Hysterosoma with transverse striae on the dorsocentral area. Empodium claw-like, with 3 pairs of prox-

imoventral hairs that are similar in length and set at a nearly right angle with claw. Two sets of duplex setae on tarsus I adjacent to each other. Tibia I with 9 tactile setae; tibia II with 8 tactile setae.

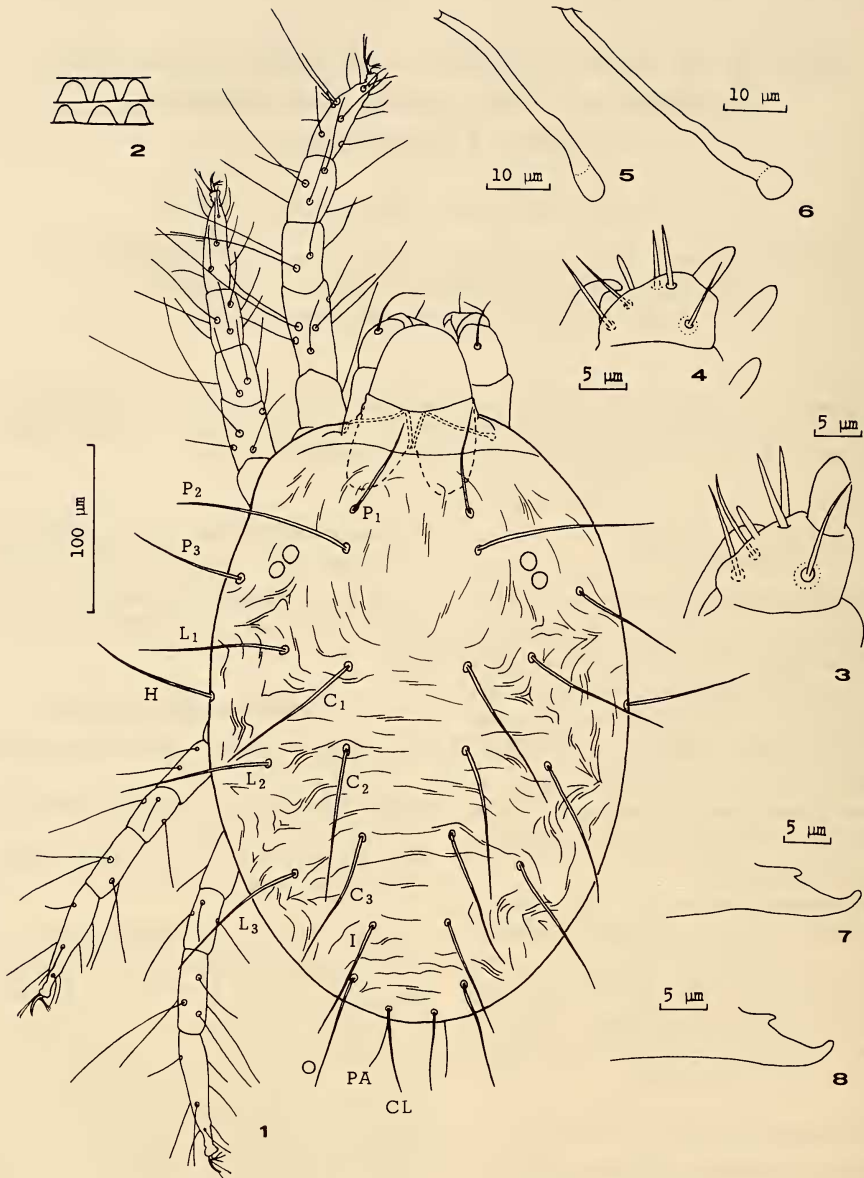
Sasanychus akitanus Ehara

Panonychus (Sasanychus) akitanus Ehara, 1978 [1], p. 88, Figs. 1-11.

Sapporo population of *Panonychus akitanus*: Gotoh, 1986 [2], p. 125; 1986 [3], p. 137.

Stiped-egg form of *Panonychus akitanus*: Gotoh, 1986 [3], p. 149; 1986 [4], p. 153.

Female Dark green. Measurements in μm : body length (including rostrum) 463, body width 273; lengths of setae: P₁ 80.7 \pm 0.5*, P₂ 130.5 \pm 1.8, P₃ 92.0 \pm 1.2, H 106.0 \pm 1.3, C₁ 114.5 \pm 1.1, C₂ 113.1 \pm 0.9, C₃ 108.1 \pm 1.6, L₁ 112.3 \pm 1.2, L₂ 118.3 \pm 1.3, L₃ 113.6 \pm 1.3, I 94.7 \pm 0.6, O 86.8 \pm 0.8, CL 64.5 \pm 0.7, PA 50.4 \pm 1.1; distances: P₁-P₁ 81.4 \pm 0.6, P₂-P₂ 91.6 \pm 0.7, C₁-C₁ 78.7 \pm 1.9, C₂-C₂ 81.5 \pm 1.1, C₃-C₃ 58.4 \pm 1.3. Length ratio P₃/body = 0.197 \pm 0.005, H/body = 0.229 \pm 0.005, L₂/body = 0.256 \pm 0.005, L₃/body = 0.245 \pm 0.004. The number of setae and solenidia (in parentheses) on leg podomeres: femora 10-7-4-3, genua 5-5-4-4, tibiae 9(1)-8-6-7, tarsi 14(1)+2 dupl. -13(1)+1 dupl. -10(1)-10(1).



FIGS. 1-8. *Sasanychus pusillus* n. sp. 1: Dorsum of female. 2: Lobes on dorsal hysterosomal striae (schematic). 3: Distal segment of palpus of female. 4: Distal segment of palpus of male, showing variation of terminal sensillum. 5-6: Peritremes of female. 7-8: Aedeagi.

Male Measurements in μm : body length (including rostrum) 344, body width 160; lengths of setae: P_1 67.1 ± 0.7 , P_2 92.6 ± 1.0 , P_3 75.3 ± 1.3 , H 82.7 ± 1.0 , C_1 86.3 ± 1.2 , C_2 83.1 ± 0.9 , C_3 75.3 ± 0.5 , L_1 81.5 ± 0.9 , L_2 88.5 ± 1.0 , L_3 84.0 ± 0.8 , I

66.0 ± 1.1 , O 56.6 ± 1.0 , CL 35.3 ± 1.0 , PA 31.7 ± 1.6 . The number of setae and solenidia (in parentheses) on leg segments: femora 10-7-4-3, genua 5-5-4-4, tibiae 9(3)-8-6-7, tarsi 13(3)+2 dupl. -13(1)+1 dupl. -10(1)-10(1).

Specimens examined In addition to the type-series (type locality: Nishi-senboku, Akita Pref., Honshu), the following specimens from Hokkaido have been examined: Four ♂♂ and 5 ♀♀, Hokkaido Univ. campus, Sapporo, 9-IX-1983 (S. Ehara and T. Gotoh), on *Sasa senanensis* (Franchet et Savatier) Rehder; 4 ♂♂ and 4 ♀♀, 9-IX-1983 (S. Ehara and T. Gotoh), bred in Inst. of Appl. Zool., Hokkaido Univ., originally collected on Hokkaido Univ. campus, V-1983 (T. Gotoh), on *Sasa senanensis*; 5 ♂♂ and 13 ♀♀, Hokkaido Univ. campus, VII~VIII-1985 (Y. Saitô), on *Sasa senanensis*.

Distribution Hokkaido, Honshu.

Remarks The redescription is based on the type-series, but the measurements nearly accord with those for the specimens from the Hokkaido University campus, Sapporo.

Sasanychus pusillus Ehara et Gotoh, n. sp.

(Japanese name: Hime-midori-hadani)

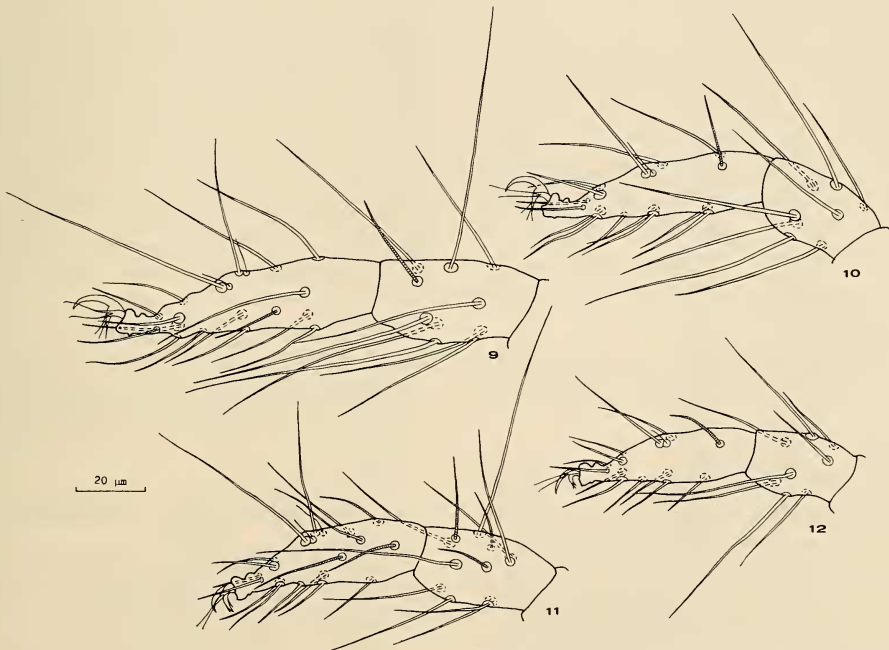
(Figs. 1-12)

Tomakomai population of *Panonychus akitanus*: Gotoh,

1986 [2], p. 125; 1986 [3], p. 137.

Stipeless-egg form of *Panonychus akitanus*: Gotoh, 1986 [3], p. 149; 1986 [4], p. 153.

Female Body blackish green. Idiosoma with dorsal setae slender, pubescent, longer than distances between consecutive setae. Dorsal hysterosomal striae with lobes rounded apically. Peritremes dilated distally. Genital flap with mostly transverse striae; area immediately anterior to flap with longitudinal striae. Palpus with terminal sensillum approximately twice as long as wide; dorsal sensillum much smaller, slender. Measurements in μm : body length (including rostrum) 416, body width 250; lengths of setae: P_1 64.7 ± 0.7 , P_2 103.7 ± 1.0 , P_3 67.0 ± 0.5 , H 70.6 ± 1.0 , C_1 90.8 ± 0.6 , C_2 88.2 ± 0.7 , C_3 82.7 ± 1.0 , L_1 86.0 ± 0.8 , L_2 88.8 ± 1.2 , L_3 87.0 ± 0.9 , I 73.2 ± 0.9 , O 64.5 ± 0.8 , CL 45.6 ± 0.6 , PA 38.9 ± 0.8 ; distances: P_1 - P_1 70.2 ± 0.8 , P_2 - P_2 77.2 ± 0.6 , C_1 - C_1 71.3 ± 1.2 , C_2 - C_2 71.8 ± 0.8 , C_3 - C_3 53.5 ± 0.9 . Length ratio $P_3/\text{body} = 0.161 \pm 0.004$, $H/\text{body} = 0.170 \pm 0.005$, $L_2/\text{body} = 0.214 \pm 0.005$, $L_3/\text{body} = 0.210 \pm 0.004$. The number of setae and solenidia (in parentheses) on



FIGS. 9-12. *Sasanychus pusillus* n. sp. 9: Tarsus and tibia I of female. 10: Tarsus and tibia II of female. 11: Tarsus and tibia I of male. 12: Tarsus and tibia II of male.

leg segments: femora 10-7-4-3, genua 5-5-4-4, tibiae 9(1)-8-6-7, tarsi 14(1)+2 dupl. -13(1)+1 dupl. -10(1)-10(1). Tarsus I with 5 tactile setae and 1 solenidion proximal to duplex setae; tarsus II with 3 tactiles and 1 solenidion proximal of duplex setae.

Male Aedeagus bent dorsad; the shaft with a prominent process near basilar lobe, the distal upward part nearly straight, terminating in a round tip. Palpus with terminal sensillum slender; dorsal sensillum shorter, very slender. Empodium I with the middle pair of hairs strong, the ventral pair weak, and the dorsal pair similar to the middle or ventral one. Measurements in μm : body length (including rostrum) 318, body width 158; lengths of setae: P_1 53.2 ± 1.2 , P_2 83.3 ± 1.4 , P_3 58.0 ± 1.1 , H 57.7 ± 1.2 , C_1 68.3 ± 1.1 , C_2 66.7 ± 0.5 , C_3 62.6 ± 1.0 , L_1 69.0 ± 0.9 , L_2 68.4 ± 1.0 , L_3 69.0 ± 1.3 , I 50.3 ± 1.0 , O 41.2 ± 0.6 , CL 24.0 ± 0.7 , PA 22.1 ± 0.9 . The number of setae and solenidia (in parentheses) on legs: femora 10-7-4-3, genua 5-5-4-4, tibiae 9(3)-8-6-7, tarsi 12(3)+2 dupl. -11(1)+1 dupl. -10(1)-10(1). Tarsus I with 3 tactile setae and 3 solenidia proximal to duplex setae; tarsus II with 1 tactile seta and 1 solenidion well proximal to duplex setae.

Type-series Holotype: ♂, Takaoka, Tomakomai, Hokkaido, 7-VIII-1982 (T. Gotoh), on *Sasa apoiensis* Nakai. Paratypes: 6 ♂♂ and 19 ♀♀, with the above data; 6 ♂♂ and 30 ♀♀, 9-IX-1983 (S. Ehara and T. Gotoh), bred in Inst. of Appl. Zool., Hokkaido Univ. [host in laboratory, *S. apoiensis* and occasionally *S. senanensis* (Franchet et Savatier) Rehder], originally collected at Takaoka, Tomakomai, 13-VII-1983 (T. Gotoh), on *S. apoiensis*.

The type-series is deposited in the Biological Institute, Faculty of Education, Tottori University.

Distribution Hokkaido.

Remarks The female of *Sasanychus pusillus* closely resembles that of *S. akitanus* but differs from the latter in having the dorsal idiosomal setae noticeably shorter (*t*-test, $P < 0.001$ for each seta). The former is smaller in body size than the latter, but the length ratios of setae P_3 , H , L_2 and L_3 to body are distinctly smaller in *pusillus* (*t*-test, $P < 0.001$).

Further, the male of *pusillus* is characterized by having tarsus II with one tactile seta and one solenidion proximal to duplex setae; in the male of *akitanus* tarsus II has three tactiles and one solenidion on the area. In addition, the male tarsus I of *pusillus* has three tactiles and three solenidia proximal to the duplex setae, instead of four tactiles and three solenidia. The aedeagus of *pusillus* is distinctive in that the distal upward part is not undulate and ends in a round tip, and the dorsal margin of the shaft bears a prominent process, whereas in *akitanus* the distal part is slightly sigmoid and has a truncate tip, and the shaft is smooth dorsally.

S. pusillus overwinters as eggs on *Sasa apoiensis* Nakai in Tomakomai, while *akitanus* overwinters both as eggs and female adults on *Sasa senanensis* (Franchet et Savatier) Rehder in Sapporo [2, 3]. The eggs of *pusillus* are deficient in a dorsal stipe, but those of *akitanus* have a distinct dorsal stipe [3]. Moreover, there is the obvious post-mating reproductive isolation between the two species [4].

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